

# Studying the $Z$ Boson with the ATLAS Detector at the LHC <sup>1</sup>

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**Abstract:** In this experiment we measure the mass of the  $Z$ -Boson using pre-selected data measured by the ATLAS detector at the LHC in 2012. The data was compared to Monte Carlo simulations revealing data points generated by secondary processes which were filtered out. By fitting the convolution of a Gaussian and a Breit-Wigner distribution to filtered data we could determine  $m_Z = 5 \text{ MeV}$

Als besondere Auswertung testiert: Datum, Unterschrift:

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<sup>1</sup>Experiment FP94 performed the 4<sup>th</sup> Nov. 2024. Supervisor: Ruiz, Miguel

